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NEED, MERIT, AND REWARD EXPECTATIONS

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ABSTRACT

This study examines the effects of knowing a person's level of need on an observer's assessment of that person's task output and value as a worker. A theoretical model, derived from reward expectations theory in combination with the assumption that need is a legitimate basis for allocation of rewards, predicts that high need will inflate perception of the "deservingness" of a target person. Data from a vignette study in which subjects read about the relative output and need of target persons and gave their perceptions of the target person's value support the reward expectations model.

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INTRODUCTION

Does an observer's knowing that a person is needy affect that observer's perception of the person's merit? The criteria of merit, equality, and need are the traditional theoretical bases of reward allocation in social psychology (e.g., Deutsch, 1985). However, much more research has been conducted on allocations due to criteria of merit and/or equality than need (Hegtvedt and Markovsky, 1995).

We address the topic of the consequences of using need as a basis for reward allocation using the framework of expectation states and reward expectation theory (Berger, et al 1985; Wagner and Berger, 1993). Consider two members of a small work group, who have either higher or lower financial need than average for the group, and whose actual task performances are also either higher or lower than average for the rest of the group. Will the person with higher need be perceived as less deserving or more, for the same documented level of task performance?

Expectations for Performance and for Rewards

First, we make the scope assumption that need is a legitimate basis for allocation decisions. There is empirical evidence showing that in settings similar to the one we are describing people do think that more money should be allocated to needier persons (Elliott and Meeker, 1986, Meeker and Elliott, 1995, Meeker, 1998).

Second, we suppose that once unequal allocations are made on the basis of need, those inequalities will be translated into perceptions of consistent inequalities on other dimensions. This assumption comes from reward expectations theory. The existence of inequalities in rewards serves as a standard in terms of which expectations for status ("who you are"), task ability ("what you can do"), or task outcome ("what you have done") are formed (Wagner and Berger, 1993, p. 42). Expectations for inequalities in reward may be based on need, status, chance, abilities, task performance, or other reasons. Whatever their source, they induce expectations for inequalities in other attributes by creating paths of relevance connected to other legitimate sources of reward inequalities. Empirical evidence that unequal allocation of rewards can work backward to create unequal perceptions of task performance is reported by Lerner (1965), Cook (1975), and Harrod (1980). None of these dealt explicitly with unequal allocations produced by differences in level of need.

Using reward expectations theory, we argue that people with higher need will receive more rewards and hence will be perceived as having higher ability or making greater contributions because of the reward expectation process. Theoretically, this could work through a general 'halo' effect without much conscious cognitive awareness, or it could be accompanied by cognitive justifications or attributions such as supposing that people with greater need will try harder, be more cooperative and grateful, undertake more difficult tasks, etc.

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METHOD

The study, described in more detail in Meeker and Elliott (1995), uses a vignette format introduced by Elliott and Meeker (1984, see also Elliott and Meeker, 1986; Meeker and Elliott, 1995). A subject is told to place him/herself in the role of allocator to a hypothetical group of other persons. The subject does not personally share in the allocation. The subject is asked to imagine him/her self as the supervisor of a group of student research assistants, whose task is to conduct telephone interviews for a survey research organization. The work is described as a success (all the interviews were completed) and half the vignettes described the group as having high and half as having low morale. Then the subject is told it is up to "you, as the project supervisor" to divide up \$1000.00 among the five research assistants "according to whatever distribution seems to be most fitting."

Independent Variables

Level of DESCRIBED TASK OUTPUT is manipulated by listing the number of phone calls made by each of the research assistants, who are identified as A, B, C, D, and E. Assistants A, C, and E are described as doing about 150 phone interviews each. In contrast, two 'target' persons, B

and D, are described as deviating from the average by each doing either more (186 interviews) or fewer (112 interviews).

Level of NEED is manipulated by a description of the research assistants' answers to a question on the employment application that asked for their reasons for wanting the job. One question asked about the importance of "personal financial need" on a scale from 9, "a very important factor," to 1, "financial need was of almost no importance." A hypothetical research assistant with high need is described as marking 9, and a person with low need is described as marking 1 on this question. Other group members, in contrast, are described as marking 4, 5, or 6 on this question. Both 'target persons' B and D are described as deviating from the average in need. Telling subjects that the organization has collected information about its employees' needs, and providing that information to the subjects, should help establish that need as well as output may be a legitimate basis for reward allocation in this setting.

After reading about the group and the described output and needs of its members, the subject is asked to write in a dollar amount to pay each assistant, adding up to \$1000.00. Several pages of attitude questions follow the actual allocation, and subjects were encouraged to write comments if they chose. Each subject answered questions about one vignette. The result of analysis of the allocation question has already been published (as noted above, Meeker and Elliott, 1995). The attitude questions, not reported previously, provide the data for the following analysis.

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Subject Population

Subjects were 322 students in lower level sociology classes at a large state university. Sixty-five percent of respondents are female; 60 percent are in their first or second year of college; 60 different majors are represented, with the largest single major being Business with 11 percent.

DESIGN

Each vignette presents high or low described output for B, high or low described output for D, high or low need for B and high or low need for D, in a completely crossed 2 X 2 X 2 X 2 design. Consistent with the expectations states interpretation, we can also view these as providing for each vignette one of four possible combinations of described output of B and D: [++], (B and D both made more phone calls than average); [+ -] (B made more, D fewer than average); [- +] (B made fewer, D made more); and [--], (both B and D made fewer phone calls than average). Likewise, each vignette has one of four possible combinations of level of need of B and D: [++], (B and D both have higher need than average); [+ -] (B has higher, D lower); [- +] (B lower, D higher); and [--] (both B and D have lower need than average).

Dependent Variables

The first part of our question was, does relative need affect allocation? This was answered in the earlier study. Meeker and Elliott, (1995) report that subjects did respond to need as well as to task output. Need was a less powerful, although still significant, variable than output in predicting allocation; more needy targets received larger allocations.

In this report, we deal with the second part of the question, i.e., is allocation on the grounds of need associated with higher perceptions of deservingness? We analyze two dependent variables, both taken from the attitude and reaction questions answered by the subjects after they had written in the dollar allocation amount. The first dependent variable is RELATIVE PERCEIVED OUTPUT, and the second is RELATIVE WILLINGNESS TO HIRE AGAIN.

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Perceived Output

After making the allocation decision, respondents answered a set of questions with 9-point scales. Two of these were originally intended as manipulation checks; we wanted to know that the subject had read and understood the vignettes. Hence, we asked for perceptions of the output of Persons B and D relative to other group members: "How do you rate the number of interviews done by Person B(D)?" (9 = "more than others" to 1 = "less than others"). Analysis of these variables indicates that the manipulations were effective; respondents perceive higher output from a B described as completing 186 interviews compared to B described as completing 112 (7.48 vs. 2.65, $t=35.25$, $p<.001$). Likewise, perceived output of D with 186 interviews is higher than perceived output of D with only 112 (7.41 vs. 2.77, $t=29.32$, $p<.001$). Although the analysis of main effects of manipulated variables on perceptions shows a powerful effect of the manipulations, we also found a complex set of interaction effects of other variables on the perceptions of output of B and D. It would appear that in the course of processing information about the group, the respondents are constructing a complex model of the relative "deservingness" of the individuals in the group that includes factors in addition to simple quantity of work. No significant main effects of gender appeared, nor two-way interactions of gender with any independent variables for either of the two dependent variables considered in this paper. Therefore, data from men and women are combined.

The dependent variables for the present analysis are created by subtracting the rating for D from the rating for B, for a measure of B's "perceived advantage" over D. This measure has a possible range of -8 to +8. For this data set, the mean value for relative perceived output is -.10, with a standard deviation of 3.97; the full range from -8 to +8 is represented among subject responses.

A difference score can be ambiguous, because it may be hard to tell which of the two variables whose difference it represents is the source of variation in its value. We are using difference scores here for two reasons. First, in expectation states theory, it is the difference between expectations for two persons that is theoretically interesting. Regardless of whether a differentiation results from raising expectations for one or lowering them for the other the existence of an 'expectation advantage' is what activates interesting consequent processes. Second, as noted below, the analysis of allocations indicated that subjects were processing the information about persons B and D sequentially. Since the subjects apparently looked at the two target persons as a unit, it does not distort our interpretations to do so also.

Willingness to Hire Again

This variable results from questions that asked 'How willing would you be to hire Person B (D) for your next research project?', with answer on a 9 point scale (9 = "very willing" to 1 = "Not at all willing"). As with perceived output, this variable is strongly affected by the described output

of the target persons, but also has complex interactions with need of both target persons. Respondents are more willing to hire a B described as completing 186 interviews compared to B described as completing 112 (8.13 vs. 4.26, $t=20.93$, $p<.001$). Likewise, they are more willing to hire target D with 186 interviews than D with only 112 (8.08 vs. 4.52, $t=17.74$, $p<.001$).

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As with perceived output, the dependent variable here is created by subtracting the rating for willingness to hire D from the rating for willingness to hire B, for a measure of B's "advantage" over D. This has a possible range of -8 to +8. For this data set, the mean value of relative willingness to hire is -.15, with standard deviation of 3.37 and the full range from -8 to +8 is represented among subject responses.

Hypotheses

If subjects are only paying attention to the reported number of phone calls, B's advantage over D will be positive for described output [+], negative for described output [-], and zero for [++] and [--]. If description of need has any effect on perception of output, it will modify the main effect of described output. The base-line or null hypothesis is that: if level of need has no effect on perception of output, or on willingness to hire again, the only effects on the dependent variable of B's advantage over D will be due to described output.

Our theoretical hypothesis is that high need inflates perception of task output and willingness to hire again. We also predict that in addition to the effects of described output, vignettes with the [+/-] state of relative need will produce an additional positive advantage of B over D and/or those with the [-/+] state of relative need will produce an additional 'disadvantage' of B over D.

Analytic Strategy

We use a two-stage strategy to answer our research questions. First, we report the results of an analysis of variance in which all of the independent variables are entered and we predict interaction effects between the independent variables need and described output. Then if, as hypothesized, we find significant interactions between need and output, we present a table of paired comparisons using Tukey's Honestly Significant Difference test for pairs of means. This tells us which pairs of means are creating the interaction effects.

RESULTS

Allocations

The allocations that subjects recommended are reported and discussed elsewhere (Meeker and Elliott, 1995). In order to understand the present results, however, it is important to review some of the earlier ones. Overall about 48% of the subjects allocated the money equally to all 5 assistants. Of the slightly more than half that discriminated among the assistants, allocation was on average higher to targets described as higher in output and also to those described as higher in need. Although both described output and need had significant effects, the effect of described output was stronger than the effect of need. Furthermore, subjects were more likely to allocate equally to all when information about the target persons was contradictory (e.g., B had high need

but low described output or vice versa). Thus, our assumption that need is a legitimate basis for reward allocation in this situation is justified.

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The analysis of allocations indicated that subjects were processing the information about persons B and D sequentially. That is, some subjects looked at information about B first, and when information about B led them to allocate equally to all, stopped looking at the output of the other assistants. Thus, information that might have distinguished D was discounted. However, if the information about B led them to consider an unequal payment, they read on and took information about D equally into account. This means that the size of the effect of B's characteristics appears stronger than the effect of D's, but there is no trace of an order effect when a statistical analysis that tests for such an effect (e.g., a repeated measures design) is used.

Relative Perceived Output

The dependent variable relative perceived output, or difference between perceived output of B and D, was first examined in a 4-way analysis of variance with described output of B, described output of D, need of B and need of D as independent variables. The results show, not surprisingly, a main effect for described output of B ($F = 662.42, p < .001$) and for described output of D ($F = 577.18, p < .001$).

Of more interest for the present discussion, each of these effects is modified by levels of need of the other actor. This appears as two significant interaction effects; described output of B by need of D ($F = 13.85, p = .040$) and described output of D by need of B and need of D ($F = 14.24, p = .037$). There are no other significant main effects or interactions.

The means appear in Table 1. This also shows the results of a one-way analysis of variance of the dependent variable with a Tukey Honestly Significant Differences test. This examines differences between all pairs of means for the 16 discrete categories of relative described output by relative need. Cells that share a symbol do not differ significantly from each other.

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Table 1. Mean Difference between perceived output of B and of D (B's 'perceived advantage' over D) by relative described output and need of B and D. Standard deviations in parentheses, number of cases is third entry. Cells that share a symbol do not differ from each other by a Tukey HSD test, $p < .05$.

	Relative Need of B and D			
Relative Described Output of B and D	--	- +	+ -	++

--	-1.06+ (1.73) 18	-0.23+ (0.53) 22	0.11+ (1.45) 18	0.00+ (0.31) 22
- +	-5.30* (1.72) 20	-4.94* (1.70) 18	-5.05* (2.16) 21	-4.65* (2.83) 20
+ -	5.22^! (1.83) 18	5.40^! (1.72) 15	6.05! (2.21) 20	4.00^ (3.28) 20
++	0.20+ (0.52) 20	0.01+ (0.57) 19	-0.05+ (0.50) 21	0.09+ (2.29) 23

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As expected, most of the differences are due to the effect of described level of output. For relative described output [--], [++] and [--], relative need makes no difference. However, for the relative described output [+ -] (B did more phone calls and D did fewer than average), the perceived output of B relative to D is significantly higher when B is also needier than D than it is when both have high need (mean advantage of B over D for the [+ -], [+ -] cell is 6.05, the highest of any of the 16 categories, while mean advantage of B over D for [+ -], [++] is only 4.00).

This supports the reward expectation hypothesis. The subjects inflated the perceived difference between output of target persons with high and low described output when the target with higher described output also had higher need.

Willingness to Hire Again

The variable, difference between willingness to hire B and D or 'B's advantage over D' in perceived value as a worker, was also examined with a 4-way analysis of variance. Described output of B, described output of D, need of B and need of D were independent variables in the analysis. As with perceived output, there are substantial main effects of described output of B ($F=284.73$, $p < .001$) and described output of D ($F=209.94$, $p < .001$). However, as with perceived output, these are modified by interaction with both need of B and need of D. The interactions are somewhat more complex than for perceived output. First, there is a significant two-way interaction between described output of B and need of D ($F=9.57$, $p = .002$). This in turn is modified by described output of B (3-way interaction of described output of B, need of D and described output of D, $F=4.43$, $p = .036$) and by need of B (3-way interaction of described output of B, need of D and need of B, $F=8.95$, $p = .004$). Furthermore, there is a significant three-way interaction among described output of D, need of B and need of D ($F=7.73$, $p = .006$). Thus, each of the independent variables has an effect that is modified in some way by levels of two of the others.

The means for relative willingness to hire B and D appear in Table 2. Cell entries that share a symbol do not differ significantly from each other.

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Table 2. Mean Difference between willingness to hire B and to hire D (B's advantage over D) by relative described output and need of B and D. Standard deviations in parentheses, number of cases is third entry. Cells that share a symbol do not differ from each other by a Tukey HSD test, $p < .05$.

	Relative Need of B and D			
Relative Output of B and D	- -	- +	+ -	+ +
- -	0.47#+@ (1.84) 19	0.00#+ (2.07) 22	-1.00#+@ (1.75) 18	-0.09#+ (0.29) 22
- +	-4.10* (1.86) 20	-4.78* (2.21) 18	-3.76* (2.81) 21	-2.58*@ (2.61) 19
+ -	3.83?! (2.66) 18	3.81?!^ (2.74) 16	5.10? (2.02) 20	1.60+^! (3.73) 20
+ +	0.55#+ (1.43) 20	0.17#+ (1.04) 18	0.00#+ (0.32) 21	-0.04#+ (1.06) 23

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If described output alone is affecting relative willingness to hire, then entries in each row will not differ from each other. This is true for the rows representing effects of [--], [-+], and [++] output. However, for the [+ -] combination (B did more work than average, D did less), the mean advantage of B over D is 5.10, the highest value of any cell, when B also has higher need and D has lower need than average. This value is significantly different from the mean advantage of B over D when B did more work than D and both have high need (1.60, the lowest value in this row). Subjects have inflated their evaluation of B over D when B did more work than D and also has higher need. Also, the relative disadvantage of a less productive B, the [-+] Output combination, is least when both have equal and high need. This once again is consistent with the reward expectation hypothesis; targets who qualify for higher rewards on ground of both output and need are seen as more valuable workers than those who qualify for higher rewards only on the grounds of output.

Subjects who Allocated Unequally

One of our assumptions is that it is the unequal rewards that activate unequal expectations on other dimensions. In other words, the subjects who did not allocate equally are the ones who formally meet the conditions of the theory. We therefore repeat the analysis but this time only

with the subjects who allocated unequally. As noted above, approximately half the subjects did each. Of the 169 subjects who did not allocate equally, 134 (79%) allocated consistently with both output and need. Another 30 (18%) allocated consistently with output but not with need, and only 3 (2%) allocated consistently with need but not output. A total of 2 (1%) were inconsistent with both.

Since allocation choice is not randomly assigned, we cannot make strict causal interpretations of these results, and should view any statistically significant patterns as associations rather than effects. An additional caveat is that since the conditions are no longer randomly assigned, there are very small or empty cells in several conditions, primarily those in which need and output contradict each other. It is not possible to determine precisely which subjects allocated on the basis of need since some of the equal allocations were apparently the result of trying to resolve contradictions between merit and need. Also, some of the subjects who allocated consistently with merit but not need may have modified the amount they allocated after taking need into account.

Tables 3 and 4 replicate the analysis of Tables 1 and 2 for relative perceived output and relative willingness to hire respectively, including only those subjects who did not allocate equally.

For the 166 subjects who allocated unequally and answered both questions about perceptions of output, the 4-way analysis of variance for relative perceived output is quite similar to the one for the whole sample. There are significant main effects of described output of B ($F = 428.93$, $df = 1$, $p < .001$) and described output of D ($F = 400.82$, $df = 1$, $p < .001$) and an interaction between described output of B and need of D ($F = 5.91$, $df = 1$, $p = .016$). The means are shown in Table 3.

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Table 3. Mean Difference between perceived output of B and of D by relative described output and need of B and D, subjects who did NOT allocate equally. Standard deviations are in parentheses, number of cases below. Cells that share a symbol do not differ from each other by a Tukey HSD test, $p < .05$.

Relative Described Output of B and D	Relative Need of B and D			
	--	- +	+ -	++
--	-0.81+ (1.83) 11	-0.28+ (0.61) 14	0.25+ (0.89) 8	0.00+ (0.45) 11
- +	-5.22* (1.30) 9	-5.54* (1.56) 13	-6.25* (1.67) 8	-4.90* (2.28) 10

+ -	6.00! [^] (1.29) 7	5.00! [^] (1.60) 8	6.14! (2.14) 14	3.72 [^] (3.50) 11
+ +	0.17+ (0.41) 6	0.40+ (0.52) 10	0.00+ (0.00) 12	-0.36+ (1.94) 14

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Table 3 also shows the results of comparisons of pairs of means by the Tukey HSD test. In Table 3 we have the same pattern as in Table 1; the perception of B's advantage over D is inflated when B's need is higher than D's.

For the 165 subjects who allocated unequally and who answered both questions about willingness to hire B and D, the four-way analysis of variance of relative willingness to hire by described output and need of both B and D shows the following: main effects of described output of B ($F=179.18$, $p < .001$) and described output of D ($F= 154.26$, $p < .001$); three two-way interactions in which the effect of described output is modified by level of need (described output of B by need of B, $F = 4.22$, $p = .042$, described output of B by need of D, $F = 6.00$, $p = .015$, and described output of d by Need of B, $F = 4.16$, $p = .043$). The previous 3-way interaction has disappeared. Table 4 shows the means.

Table 4. Mean Difference between willingness to hire B and D by relative described output and need of B and D, subjects who did NOT allocate equally. Standard deviations are in parentheses, number of cases below. Cells that share a symbol do not differ from each other by a Tukey HSD test, $p < .05$.

Relative Described Output of B and D	Relative Need of B and D			
	--	- +	+ -	+ +
--	-0.73+* [@] (2.41) 11	0.08+ [@] (2.66) 13	-1.37+* (1.60) 8	-0.09+* [@] (0.30) 11
- +	-5.00? (1.80) 9	-5.23? (2.09) 13	-4.25? (3.29) 8	-3.30?* (2.54) 10
+ -	5.14! [^] (2.80) 7	5.00 [^] (1.85) 8	5.14 [^] (1.79) 14	2.18 [^] [@] (4.31) 11

+ +	0.33+*!@ (0.82) 6	0.00+*@ (1.25) 10	-0.08+*@ (0.29) 12	-0.28+*@ (1.07) 14
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This pattern is similar to the pattern shown for relative willingness to hire for all subjects in Table 2. It is more complex than the pattern for relative perceived output for unequal allocators (Table 3) but it also shows that where D's need is equal to B's, B's advantage due to superior described output is diminished. This contrasts 5.14 for [+][+], the largest advantages of B over D with 2.18 for [+][++]. The same contrast shows up in the comparison of B's disadvantage in the [+][+] combination, -5.23 with B's disadvantage in [+][++] of -4.25.

Tables 3 and 4 suggest that the effects of relative need on perceptions of output and willingness to hire again shown for all subjects in Tables 1 and 2 occur primarily among those subjects who did not allocate equally. This is consistent with the theoretical argument that it is making or observing unequal rewards that activates the reward expectation processes that lead to unequal evaluations of merit.

DISCUSSION AND CONCLUSIONS

For both variables, one measuring subjects' evaluations of targets' actual output and the other their willingness to hire them in the future, the results are consistent with the reward expectations model. That is, subjects' perceptions of target persons were modified by information about the target persons' level of need, and where this occurred, higher need was associated with higher evaluations. However, the pattern appears to be that high need adds to an already high perception of task performance, not that it compensates for a low level of task performance.

Our results show no evidence at all that high need diminishes perception of task performance. However, we do not claim that this will be true of all allocation settings. In this study's design, several factors mitigate against downgrading of expectations for persons with high need. First, the subject making the allocations does not share in the rewards, hence there is no competition involved. Second, the target persons are described as similar in status (all students, identified by a letter, with gender, race, etc unknown) therefore status generalization processes that might produce differential expectations for task performance are not activated. Many intense public debates over 'entitlements' involve target persons with different statuses on race, gender, education, marital status, or other status characteristics that do activate differential expectations for task performance. Third, the need described in the vignettes is a legitimate one for the subject population. Since students often need jobs, it is not automatically assumed that needing pay from a job indicates incompetence. Also, the fact that subjects are told the organization collected information about employees' need suggests that need is a legitimate consideration in this organizational setting.

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Fourth, the need is not described as the result of past differences in reward. If the reward expectations model is correct, persons described as being in need because of past differential rewards (e.g., economic disadvantage, discrimination) may be vulnerable to the working backward of unequal rewards to unequal expectations for ability even while being seen as legitimately deserving allocations based on need. Finally, in our vignette, the allocators did not bargain with the targets. A person in a poor bargaining position may receive lower rewards because of lacking alternative sources of those rewards (as examined in exchange theory and research, e.g., Cook, Molm and Yamagishi, 1993; Willer and Markovsky, 1993). Once these inequalities, produced by power dependency, are observed they in turn may work backward through reward expectation processes to a lowered perception of ability or performance.

Application of our conclusions to situations of differential need involving either different states of diffuse status characteristics or differential reward due to bargaining processes should await explicit study of such situations. In the meantime, our results have provided support for the reward expectations model with need as a basis for reward allocations.

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